

Monthly Magazine  
September 2009 Edition



AQUA D'  
EXPRESS



Aqua  
Designs

## MD's Desk

Dear all,

The ISO Certification we received for the 9001:2008 version proves beyond doubt that we keep ourselves updated in all aspects and maintain a high profile in our quality and service.

The **CRISIL RATING** lays emphasis on our claim for high performance and financial strength providing us an edge over our contemporaries in the industry.

It gives me a great pleasure in finding the corporate magazine Aqua D has turned more colourful and contributing, by the involvement of our Associates. It speaks of their inherent talent and skills that they can exhibit to the fullest, if opportunity is given. This magazine, I hope will be a circulation to the read, re-read, and preserved in days to come. Aqua' D will blossom with its all magnificent colours and worthwhile contents that can spur the creative minds and stand as a platform to share knowledge and information. This month there had been flurry of activities in training that our Associates were involved in practical and site visits to enrich their knowledge.

The Pooja celebration held was really a memorable event which brought in variety of cultural events that according to me, our Associates are highly talented and equally participative and responsive to any occasion. It was also a mark of new event of conducting technical quiz competition that tested their professional knowledge.

I would impress upon the HR to conduct such lively think tank forums which will have compendium of question and answer, which will be a reference to all Project engineers..

Regards



**S.Suthakar**  
Managing Director



# REMOVAL OF IRON

## Why Remove Iron

1. Affect the appearance of water i.e. they impart a color to water.
2. Causes corrosion and pipe blockages by precipitating and forming deposits.
3. Impart a metallic taste to water.
4. Causes brown spots in clothes (laundrying problems)

## Iron

Exists in two states viz. Ferrous ( $Fe^{2+}$ ) often called as reduced or lower valent form and Ferric ( $Fe^{3+}$ ) called as oxidized or higher valent form.  $Fe^{2+}$  is a relatively stable form than  $Fe^{3+}$ .

## Presence

In surface water iron is usually present in the oxidized form, as precipitates and can be removed by conventional clarification.

In underground water, which is usually deprived of oxygen, iron is present in the reduced form and in solution.

## Natural state of iron

Ferric iron other than complex form is found as a precipitate.

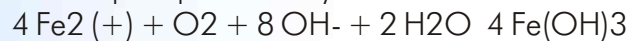
Ferrous iron is usually in soluble hydrated form viz.  $FeOH^{+}$ ,  $FeOH_2^{-}$ . In the presence of appreciable alkalinity, sulphides,  $Fe^{2+}$  exists as  $FeS_2$  or  $FeCO_3$ , which are non-filterable, precipitates.

## Oxidation and filtration

Most commonly used method. Steps involved are pH correction, oxidation and filtration. Applied to raw water with a maximum iron content of 5-10 ppm.

The principle behind this method is to convert iron to a form, which is least stable, and make the pH suitable for it to precipitate.

In the aeration process, oxidation of iron from  $Fe^{2+}$  to  $Fe^{3+}$  is accomplished by contact with oxygen. The reaction is carried at a pH of 8.5, so that  $Fe^{3+}$  formed precipitates as hydroxide.



It can be seen from the above reaction that higher the pH, more favorable is the reaction. For 1 ppm of iron, 0.14 ppm of  $O_2$  is required.

The aeration process can be accomplished in a degasser tower or in a cascade aerator. A cascade aerator is advisable if the flow is huge say 500 m<sup>3</sup>/hr or whenever civil is not in our scope. pH correction is done through addition of soda ash or lime. ACS designer is advised to design the dosing system for a higher capacity (say 50%) as the actual consumption of soda ash to increase the pH to the desired value can be ascertained only in the field.

Oxidation can also be done with chlorine. For practical considerations, 2 ppm of  $Cl_2$  is used for oxidizing one ppm of iron.

Filtration is done with a normal PSF or DMF.

Iron levels greater than 10 ppm, require a coagulant addition viz. alum or ferric chloride, with a dosage of 20-25 ppm, followed by clarification. A reactivator clarifier would be ideal. So the scheme is aeration-clarification-filtration.

## Manganese dioxide filters

Zeolites or green sands are enriched with  $MnO_2$  can also be used for iron removal. Manganese di-oxide oxidizes iron and itself gets reduced to the sesquioxide  $Mn_2O_3$ . Regeneration is done with potassium permanganate. This method is suitable for low iron content say 0.5-1.0 ppm.

# CREATIVE CONTRIBUTION FROM AQUANAUTS



## ONE-LINERS from

**Mr. M.Sivagnanam, Project Engineer**

Keep a green tree in your heart and perhaps a singing bird will come."

It is better to die with memories than to live with only dreams."

"Sometimes love is for a moment, sometimes love is for a lifetime. Sometimes a moment is a lifetime.

## STAGES IN A PERSON'S LIFE from

**Mr. Dileepan, Manager -Accounts**

CHILD-AGE

TEEN-AGE

MARRIAGE-AGE

OLD-AGE

IF USED WISELY, IT IS USAGE. OTHERWISE IT IS WASTAGE.

## INTERESTING FACTS from

**Mr. P.Thiyagarajan, Engineer - Process**

1. If you are right handed, you will tend to chew your food on your right side. If you are left handed, you will tend to chew your food on your left side.
2. If you stop getting thirsty, you need to drink more water. For when a human body is dehydrated, its thirst mechanism shuts off.
3. Chewing gum while peeling onions will keep you from crying.
4. Your tongue is germ free only if it is pink. If it is white there is a thin film of bacteria on it.
5. The Mercedes-Benz motto is "Das Bestrode Nichts" meaning "the best or nothing".
6. The Titanic was the first ship to use the SOS signal.
7. The pupil of the eye expands as much as 45 percent when a person looks at something pleasing.
8. The average person who stops smoking requires one hour less sleep a night.
9. Laughing lowers levels of stress hormones and strengthens the immune system. Six-year-olds laugh an average of 300 times a day. Adults only laugh 15 to 100 times a day.
10. The roar that we hear when we place a seashell next to our ear is not the ocean, but rather the sound of blood surging through the veins in the ear.

## De-Motivators from Mr. Velmani, GM - Projects

If you're one of the millions of people who never seem to get what they really want in life, the reason may be a few simple attitudes you have acquired that I call "de-motivators." In my experience in training thousands of professional sales people, I've found four de-motivators common to all of us, which we must overcome to attain our goals.

## The first de-motivator is the fear of lo! Sing our security.

We are so afraid of losing the security we have, that we won't give it up to get the greater security we seek. I truly believe that there is no such thing as security other than the security we build within ourselves. We are only secure to the extent of our ability to cope with the struggle called living, and we cannot be more secure than our capabilities of handling insecurity allow us to be. This means we have to give up what we have, to get what we want. If we refuse to give up anything, where will the space, time, money, and energy for new achievements come from?

## The second de-motivator is fear of failure.

How many times have you refused to try something, because you were afraid you'd fail? Isn't it sad how many of us doom ourselves to mediocre lives rather than accept the momentary rejections that success demands? We must challenge our fears, and conquer each fear forever. Soon, you will find that every time you conquer a fear, the easier it will be to beat the next one. Remember: Do what you fear most and you will control that fear.

## The third de-motivator is self-doubt.

When we're gripped by negative conviction, we believe everything we do will be wrong. When you're thinking like this it is likely that everything we do fail, and ultimately, we fail. Instead of looking at what you did wrong, look at what you did right. Keep an up" attitude, overcome rejection and keep trying. Soon, you'll start to win. The wins will start to pile up until they smother all self-doubts under a mountain of positive conviction.

## The fourth de-motivator is the pain of change.

We resist change because it means that part of our old self must die, and a self that is unknown to us, is born. We mourn the loss of the familiar as we labor through the birth of the new. To overcome this attitude, we should make a habit of trying new things when we don't have to, so we can keep the best of the old in our lives as a strong emotional foundation. Remember, there is an element of pain in all change, but those you put into motion yourself are far less painful than ones thrown at you! by others.

Peace is your nature, yet you remain restless.

Freedom is your nature, yet you remain in bondage.

Happiness is your nature, yet you become miserable for some reason or another.

Contentment is your nature, yet you continue to reel in desires.

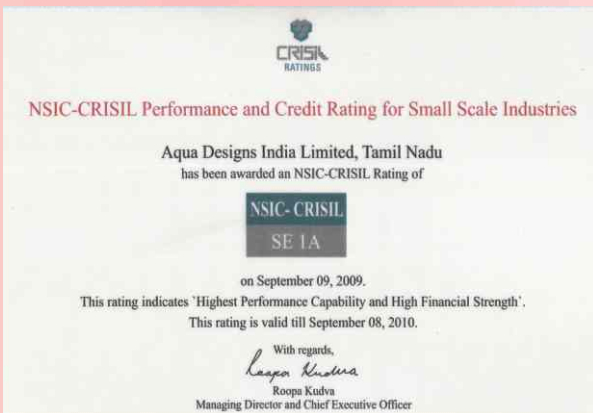
## EVENTS OF THE MONTH



The Ladies Team of Aqua Designs exhibited their prowess in floral decoration for Onam and made the day colorful with flowers and lamps in the premises.

### ISO and Crisil Rating

Aqua Designs received the Certificate for ISO 9001:2008 by RINA India Limited after successfully completing the Certification Audit conducted two months back.



We also became the recipient of Certificate from CRISIL RATINGS for Highest Performance Capability and High Financial Strength.

These certificates stand proof to the high level of quality and performance maintained by Aqua Designs till now and will continue in its future endeavors.



### Ayudha Pooja Celebration

Ayudha Pooja was celebrated piously and with grandeur which was further accentuated by the events that were organized by the HR making the day memorable.



# EVENTS OF THE MONTH



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## NEWCOMERS IN AQUA DESIGNS



**Mr. L. Balachandran** has joined our team as Assistant Manager - Projects and has around 5 years of experience in the field of Projects.



**Mr. V. Ramachandran** has joined our team as Field Chemist Lab and has around 6 years of experience in the field



**Mr. D. Madhavi Latha** has joined our team as Assistant Purchase

## SITE VISIT

A rewarding experience for our Associates who were taken for a visit to our plant at cocacola site



Effluent Recycle solution has now become simpler and smaller with AQUASub MBR technology.



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